

United States Department of Agriculture Natural Resources Conservation Service

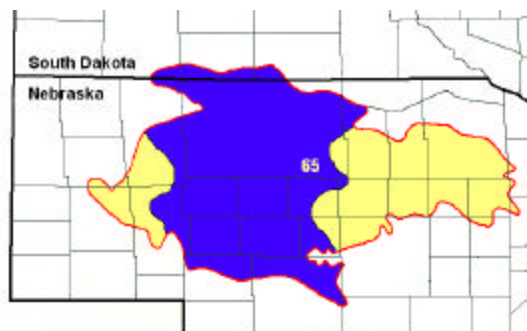
Ecological Site Description

Site Type: Rangeland

Site Name: Sandy 17-22" P.Z.

Site ID: R065XY032NE

Major Land Resource Area:
65 – Nebraska Sand Hills



Physiographic Features

Landform: Interdune

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	2600	4000
Slope (percent):	0	3
Water Table Depth (inches):	54	>72
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	None	None
Frequency:	None	None
Duration:	None	None
Runoff Class:	Negligible	Medium

Climatic Features

The mean average annual precipitation varies from 17 - 22 inches, but has varied from 13 to 27 inches in the driest to wettest season. Approximately 65 percent of the annual precipitation occurs during the growing season of mid-April to late September. The average annual snowfall varies from about 35 inches to about 55 inches. The wind velocity is high throughout the year, averaging 10 to 12 miles per hour. Maximum wind velocities generally occur in the spring.

The average length of the growing season is 134 days, but the growing season has varied from 115 to 150 days. The average date of first frost in the fall is September 25, and the last frost in the spring is about May 14. July is the hottest month and January is the coldest. It is not uncommon for the temperature to reach 100 °F during the summer. Summer humidity is low and evaporation is high. The winters are characterized with frequent northerly winds, producing severe cold with temperatures dropping to as low as -30 °F.

Growth of native cool season plants begins mid to late March and continues to late June. Native warm season plants begin growth in early May and continue to late August. Green up of cool season plants may occur in September and October when adequate soil moisture is present.

	<u>Minimum</u>	<u>Maximum</u>
Frost-free period (days):	131	137
Freeze-free period (days):	150	156
Mean Annual Precipitation (inches):	17	22

Average Monthly Precipitation (inches) and Temperature (°F):

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.31	0.52	9.1	35.1
February	0.44	0.73	13.5	41.0
March	0.75	1.41	21.3	48.6
April	1.85	2.25	31.4	61.7
May	2.88	3.65	41.5	72.1
June	3.09	3.33	51.3	82.2
July	2.77	2.92	57.4	88.2
August	2.12	2.56	55.6	86.6
September	1.56	2.02	45.2	77.7
October	1.16	1.18	33.0	66.6
November	0.44	0.75	20.5	49.6
December	0.31	0.52	11.5	39.1

Climate Stations		Period	
Station ID	Location or Name	From	To
NE2647	Ellsworth 15 NNE	1963	1997
NE6970	Purdum	1948	1997

For other climate stations that may be more representative, refer to <http://www.wcc.nrcs.usda.gov>.

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None
(Rosgen System)

Representative Soil Features

The features common to all soils in this site are the loam to fine sand textured surface soils and slopes of 0 to 3 percent. The soils in this site are from moderately well drained (Calamus soils) to excessively drained. They formed primarily in eolian sand. Calamus and Pivot soils are formed in sandy and gravelly alluvium. Jansen soils formed in loamy eolian material over sandy and gravelly alluvium. Anselmo, Doughboy and Hersh soils formed in mixed loamy and sandy eolian material. The surface layer is 3 to 10 inches thick. The texture of the subsurface generally ranges from loam to fine sand. Runoff as evidenced by patterns of rill, gully or other water flow is generally low due to the moderate to low slope gradient and high intake rate of these soils. Cryptobiotic crusts are present, but their function is not well understood. Some pedestalling of plants occurs, but it is not very evident on casual observation and occurs on less than 5% of the plants.

More information can be found in the various soil survey reports. Contact the local USDA Service Center for soil survey reports that include more detail specific to your location.

Major soil series correlated to this ecological site include: Anselmo, Dunday, Sandose and Vetat.

Other soil series that have been correlated to this site include: Calamus, Doger, Doughboy, Duda, Hersh, Jansen Variant, Pivot, Ustorthents, Valent and Valentine.

Parent Material Kind: eolian deposits

Parent Material Origin: mixed

Surface Texture: fine sandy loam, loamy fine sand, fine sand

Surface Texture Modifier: none

Subsurface Texture Group: sandy

Surface Fragments \leq 3" (% Cover): 0

Surface Fragments > 3" (%Cover): 0

Subsurface Fragments \leq 3" (% Volume): 0-28

Subsurface Fragments > 3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	moderately well	excessively
Permeability Class:	moderately slow	rapid
Depth (inches):	>80	>80
Electrical Conductivity (mmhos/cm):	0	4
Sodium Absorption Ratio:	0	5
Soil Reaction (1:1 Water):	5.1	8.4
Soil Reaction (0.1M CaCl₂):	NA	NA
Available Water Capacity (inches):	3	6
Calcium Carbonate Equivalent (percent):	0	5

Plant Communities

Ecological Dynamics of the Site:

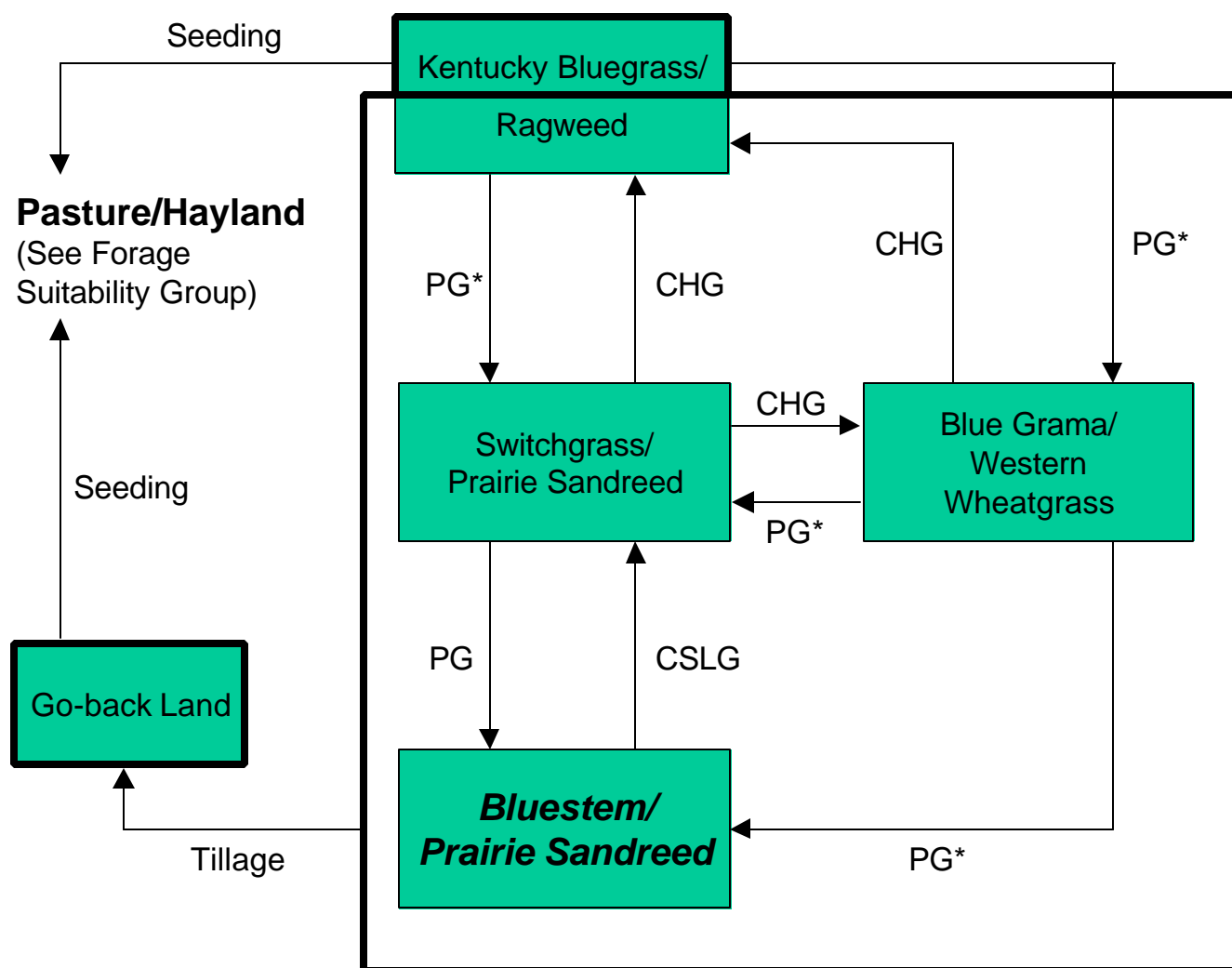
Historically, large areas of blowing sand resulted in the active movement of the sand dunes. Evaporation from the soil surface was extremely high due to the large areas of bare ground, lack of litter and sparse plant populations. The transpiration rate of these sparse plant populations was also high due to the harsh soil environment. Occasional wild fires, severe grazing by transient bison herds and drought contributed to the lack of stability of the sand dunes. This lack of stability caused the dunes to go back and forth through multiple stages of plant succession over the course of time. Early perennial plants such as sandhill muhly, blowout grass and blowout penstemon were common due to their ability to tolerate the movement of the sand and droughty conditions. As these plants began to colonize and stabilize the sand movement, other perennials such as prairie sandreed, sand bluestem, hairy grama, lemon scurfpea and rose slowly became evident on the site. Annual plants such as sandbur, Texas croton, and annual sunflower eventually colonized the areas between the perennials.

As this site deteriorates, species such as prairie sandreed, little bluestem, sand dropseed, and blue grama will increase initially. Species such as sand and/or big bluestem and switchgrass will decrease in frequency and production. With continued improper management, prairie sandreed and little bluestem will also decrease. The site is resilient and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance.

Interpretations are primarily based on the Bluestem/Prairie Sandreed Plant Community. It has been determined by study of rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Subclimax plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

The following is a diagram that illustrates the common plant communities that can occur on the site and the transition pathways between communities. The ecological processes will be discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways (diagram)



CHG - continuous heavy grazing; **CSLG**- continuous season-long grazing; **PG** - prescribed grazing w/ adequate recovery period; *If tall warm-season grass remnants are present

Plant Community Composition and Group Annual Production

		Bluestem/Prairie Sandreed			Switchgrass/Prairie Sandreed			Blue Grama/ Western Wheatgrass			Kentucky Bluegrass/Ragweed		
COMMON/GROUP NAME	SYMBOL	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp	Grp	lbs./acre	% Comp
GRASSES & GRASS-LIKES			1920 - 2280	80 - 95		1600 - 1900	80 - 95		1120 - 1260	80 - 90		675 - 765	75 - 85
BLUESTEM		1	360 - 720	15 - 30	1	200 - 400	10 - 20	1	0 - 70	0 - 5	1		
sand bluestem	ANHA	1	360 - 720	15 - 30	1	200 - 400	10 - 20	1	0 - 70	0 - 5			
big bluestem	ANGE	1	0 - 240	0 - 10	1	0 - 200	0 - 10	1	0 - 70	0 - 5			
prairie sandreed	CALO	2	360 - 720	15 - 30	2	400 - 600	20 - 30	2	70 - 210	5 - 15	2	0 - 45	0 - 5
little bluestem	SCSC	3	240 - 480	10 - 20	3	200 - 600	10 - 30	3	0 - 140	0 - 10	3		
needleandthread	HECOC8	4	240 - 480	10 - 20	4	100 - 400	5 - 20	4	70 - 210	5 - 15	4	45 - 135	5 - 15
GRAMA		5	120 - 360	5 - 15	5	100 - 300	5 - 15	5	280 - 490	20 - 35	5	90 - 225	10 - 25
blue grama	BOGR2	5	120 - 360	5 - 15	5	100 - 300	5 - 15	5	280 - 490	20 - 35	5	90 - 225	10 - 25
hairy grama	BOHI2	5	0 - 120	0 - 5				5	0 - 70	0 - 5	5	0 - 90	0 - 10
OTHER WARM-SEASON		6	120 - 480	5 - 20	6	100 - 300	5 - 15	6	70 - 350	5 - 25	6	90 - 225	10 - 25
switchgrass	PAVI2	6	0 - 240	0 - 10	6	100 - 300	5 - 15	6	0 - 70	0 - 5			
sideoats grama	BOCU	6	0 - 120	0 - 5									
sand dropseed	SPCR	6	0 - 120	0 - 5	6	0 - 200	0 - 10	6	70 - 210	5 - 15	6	90 - 180	10 - 20
sand paspalum	PASE5	6	0 - 120	0 - 5	6	0 - 100	0 - 5	6	0 - 70	0 - 5			
sand lovegrass	FRTB3	6	0 - 120	0 - 5									
purple lovegrass	ERSP	6	0 - 120	0 - 5	6	0 - 100	0 - 5	6	0 - 210	0 - 15	6	0 - 90	0 - 10
Indiangrass	SONU2	6	0 - 120	0 - 5	6	0 - 100	0 - 5						
red threeawn	ARPU1	6	0 - 120	0 - 5									
sandbur	CELO3							6	0 - 70	0 - 5	6	0 - 45	0 - 5
MISC. GRASS/GRASS-LIKES		7	48 - 240	2 - 10	7	40 - 300	2 - 15	7	210 - 490	15 - 35	7	180 - 315	20 - 35
western wheatgrass	PASM	7	0 - 120	0 - 5	7	0 - 200	0 - 10	7	70 - 210	5 - 15	7	0 - 90	0 - 10
prairie junegrass	KOMA	7	0 - 120	0 - 5	7	0 - 100	0 - 5	7	0 - 140	0 - 10	7	0 - 45	0 - 5
Scribner panicum	DIOL5	7	0 - 120	0 - 5	7	0 - 100	0 - 5	7	70 - 350	5 - 25	7	135 - 225	15 - 25
Wilcox panicum	DIWI5	7	0 - 48	0 - 2									
sedge	CAREX	7	0 - 120	0 - 5	7	0 - 200	0 - 10	7	70 - 210	5 - 15	7	45 - 135	5 - 15
Indian ricegrass	ACHY	7	0 - 120	0 - 5									
other perennial grasses	2GP	7	0 - 48	0 - 2	7	0 - 40	0 - 2	7	0 - 28	0 - 2	7	0 - 18	0 - 2
NON-NATIVE GRASSES		8			8	0 - 100	0 - 5	8	0 - 210	0 - 15	8	45 - 270	5 - 30
cheatgrass	BRTF				8	0 - 100	0 - 5	8	0 - 140	0 - 10	8	0 - 180	0 - 20
bluegrass	POA				8	0 - 100	0 - 5	8	0 - 210	0 - 15	8	45 - 180	5 - 20
FORBS		9	24 - 240	1 - 10	9	20 - 200	1 - 10	9	70 - 140	5 - 10	9	45 - 180	5 - 20
annual sunflower	HEAN3							9	0 - 14	0 - 1	9	0 - 18	0 - 2
cutweed sagewort	ARLU	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1			
gayfeather	LIATR	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1			
green sagewort	ARDR4	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 28	0 - 2	9	0 - 45	0 - 5
Missouri goldenrod	SOMI2	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1
penstemon	PENST	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1
prairie coneflower	RACO3	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1			
Rocky Mountain beeplant	CLSE							9	0 - 14	0 - 1	9	0 - 27	0 - 3
rush skeletonweed	LYJU	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1
silverleaf scurfpea	PEAR6	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1	9	0 - 9	0 - 1
spiderwort	TRADE	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1			
stiff sunflower	HEPA19	9	0 - 24	0 - 1									
Texas croton	CRTE4							9	0 - 14	0 - 1	9	0 - 27	0 - 3
thistle	CIRSI	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 14	0 - 1	9	0 - 27	0 - 3
verbena	VERBE							9	0 - 14	0 - 1	9	0 - 27	0 - 3
western ragweed	AMPS	9	0 - 48	0 - 2	9	0 - 40	0 - 2	9	0 - 42	0 - 3	9	0 - 45	0 - 5
other perennial forbs	2FP	9	0 - 48	0 - 2	9	0 - 40	0 - 2	9	0 - 28	0 - 2	9	0 - 18	0 - 2
other annual forbs	2FA	9	0 - 24	0 - 1	9	0 - 20	0 - 1	9	0 - 28	0 - 2	9	0 - 18	0 - 2
SHRUBS		10	24 - 120	1 - 5	10	20 - 200	1 - 10	10	14 - 140	1 - 10	10	9 - 90	1 - 10
rose	ROSA5	10	0 - 48	0 - 2	10	0 - 60	0 - 3						
leadplant	AMCA6	10	0 - 48	0 - 2	10	0 - 100	0 - 5						
western sandcherry	PRPUB	10	0 - 24	0 - 1	10	0 - 20	0 - 1						
small soapweed	YUGI	10	0 - 24	0 - 1	10	0 - 40	0 - 2	10	0 - 42	0 - 3	10	0 - 27	0 - 3
cactus	OPUNT	10	0 - 24	0 - 1	10	0 - 20	0 - 1	10	0 - 28	0 - 2	10	0 - 18	0 - 2
other shrubs	2SHRUB	10	0 - 48	0 - 2	10	0 - 40	0 - 2	10	0 - 70	0 - 5	10	0 - 45	0 - 5
Annual Production lbs./acre		LOW RV HIGH			LOW RV HIGH			LOW RV HIGH			LOW RV HIGH		
GRASSES & GRASS-LIKES		1760 - 2196 - 2625			1370 - 1780 - 2190			1025 - 1218 - 1410			555 - 738 - 920		
FORBS		20 - 132 - 250			15 - 110 - 205			65 - 105 - 145			40 - 113 - 185		
SHRUBS		20 - 72 - 125			15 - 110 - 205			10 - 77 - 145			5 - 50 - 95		
TOTAL		1800 - 2400 - 3000			1400 - 2000 - 2600			1100 - 1400 - 1700			600 - 900 - 1200		

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. RV = Relative values.

Plant Community and Vegetation State Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data are collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Bluestem/Prairie Sandreed Plant Community

Interpretations are primarily based on the Bluestem/Prairie Sandreed Plant Community (this is also considered climax). The site evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. This plant community can be found on areas that are properly managed. The potential vegetation is about 85% grasses or grass-like plants, 10% forbs, and 5% shrubs. Warm season mid and tall grasses dominate this plant community. Principal grasses are prairie sandreed, sand bluestem, big bluestem, and little bluestem. The cool season grasses, needleandthread, and western wheatgrass are important. Grama grasses and sedges occur as an understory. Forbs and shrubs are not abundant.

Natural fire played a significant role in the succession of this site by limiting eastern redcedar from becoming established. Wildfires have been actively controlled in recent times, allowing occasional eastern redcedar encroachment. The diversity in plant species allows for high drought tolerance. This is a healthy and sustainable plant community (site/soil stability, watershed function, and biologic integrity).

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6534

Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands

Growth curve description: Warm-season dominant, cool-season subdominant, mid & tall grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	5	15	25	30	10	7	3	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous season-long grazing will convert the plant community to the *Switchgrass/Prairie Sandreed Plant Community*.

Switchgrass/Prairie Sandreed Plant Community

This plant community is resilient and can be found on areas that have been properly managed with grazing for long periods of time. The potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% shrubs. Dominant grasses include prairie sandreed, little bluestem and switchgrass. Other grasses include sand bluestem and needleandthread. Dominant forbs include cudweed sagewort, gayfeather and western ragweed. Dominant shrubs include leadplant and rose. The bluestems and needlegrass have decreased, while prairie sandreed and switchgrass have increased. Forbs remain in balance similar to the Bluestem/Prairie Sandreed Plant Community and shrubs, such as rose and leadplant, show a moderate increase under current management conditions. This plant community maintains diversity while sustaining production.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6534

Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands

Growth curve description: Warm-season dominant, cool-season subdominant, mid & tall grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	5	15	25	30	10	7	3	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous heavy grazing will convert the plant community to the *Kentucky Bluegrass/Ragweed Plant Community* or the *Blue Grama/Western Wheatgrass Plant Community*. Excessive stocking rates will convert it directly to the *Kentucky Bluegrass/Ragweed Plant Community*.
- Prescribed grazing will move this plant community back to the *Bluestem/Prairie Sandreed Plant Community*.

Blue Grama/Western Wheatgrass Plant Community

This plant community develops with heavy livestock grazing, usually season-long. Plant diversity is diminished as the bluestems, prairie sandreed, switchgrass, and Indiangrass are removed from the plant community. Small isolated plants may exist in a prostrate form to avoid defoliation. The potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% shrubs. Dominant grasses include blue grama, western wheatgrass, Scribner panicum and sand dropseed. Other grasses or grass-likes include prairie sandreed, needleandthread and sedges. Dominant forbs include green sagewort, annual sunflower and western ragweed. Cool season plants such as western wheatgrass, prairie junegrass, and Scribner panicum increase. Blue grama will actually increase due to its ability to avoid grazing because of its short growth form. Forbs such as western ragweed and green sagewort will tend to increase, especially in periods of favorable moisture. Rose, leadplant, and western sandcherry will diminish while small soapweed, cactus, and other less palatable shrubs will increase.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6540

Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands, Grama/Wheatgrass

Growth curve description: Warm-season and cool-season co-dominant, short and mid grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	10	20	25	20	15	5	0	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous heavy grazing will convert the plant community to the *Kentucky Bluegrass/Ragweed Plant Community*. This is a relatively stable plant community that requires a considerable amount of input to return this plant community to the *Bluestem/Prairie Sandreed Plant Community*.
- Prescribed grazing will move this plant community to the *Switchgrass/Prairie Sandreed* or the *Bluestem/Prairie Sandreed Plant Community*, depending on the number and species of tall warm-season grass remnants remaining.

Kentucky Bluegrass/Ragweed Plant Community

With sustained heavy stocking during the summer months the plant community will become dominated by cool season grasses and forbs. The potential vegetation is about 70% grasses or grass-like plants, 20% forbs, and 10% shrubs. Dominant grasses include Kentucky bluegrass, blue grama, Scribner panicum and sand dropseed. Other grasses or grass-likes include needleandthread, sedges and cheatgrass. Dominant forbs include green sagewort, western ragweed, Rocky Mountain beeplant and thistles. The palatable warm season grasses are replaced by blue grama and sand dropseed. Cool season grasses such as Scribner's panicum, annual brome, and bluegrass will increase and fill the void left by the disappearing warm season tall grasses. Sedges will flourish in the understory. Western ragweed and green sagewort increase in abundance along with other less-palatable forbs. Invader thistles and annual forbs increase along with grazing resistant shrubs such as cactus and small soapweed. Once this plant community is reached, time and external resources will be needed to see any immediate recovery in the diversity of this plant community.

The following growth curve shows the estimated monthly percentages of total annual growth of the dominant species expected during a normal year:

Growth curve number: NE6541

Growth curve name: Nebraska/South Dakota Sandhills, Native Grasslands, Cool Seasons/Forbs.

Growth curve description: Cool-season dominant, warm-season subdominant, short & mid grasses.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	5	10	30	25	15	5	5	5	0	0

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Prescribed grazing will convert the plant community to either the *Switchgrass/Prairie Sandreed Plant Community* or the *Blue Grama/Western Wheatgrass Plant Community*. The direction this plant community moves depends on the remnant species present.
- Reseeding will be required if no remnant species are present.

Go-back Land Plant Community

This plant community can be reached whenever severe mechanical disturbance occurs. The vegetation on this plant community varies greatly, sometimes being dominated by Scribner panicum, bluegrass, three-awn, sand dropseed, marestalk, green sagewort, and/or ragweed. Other plants that commonly occur on this plant community include six-weeks fescue, prairie sandreed, witchgrass, little bluestem, switchgrass, and needleandthread. Compared to the Bluestem/Prairie Sandreed Plant Community, warm season natives have decreased. Annual grasses and forbs have become established in the plant community.

This plant community is variable in its resistance to change and is resilient depending on past management practices. The water cycle is not greatly affected.

Site Type: Rangeland
MLRA: 65 – Nebraska Sand Hills

Sandy 17-22" P.Z.
R065XY032NE

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Bluestem/Prairie Sandreed Plant Community:

Switchgrass/Prairie Sandreed Plant Community:

Blue Grama/Western Wheatgrass Plant Community:

Kentucky Bluegrass/Ragweed Plant Community:

Animal Preferences (Quarterly – 1,2,3,4[†])

Common Name	Cattle	Sheep	Horses	Deer	Antelope	Bison	Elk
big bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
blue grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
cactus	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
cudweed sagewort	U U U U	U U D U	U U U U	U U D U	U U D U	U U U U	U U D U
gayfeather	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
green sagewort	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U	U U U U
hairy grama	U D P U	D P P D	U D P U	D P P D	D P P D	U D P U	U D P U
Indian ricegrass	D P U D	N P N D	D P U D	N P N D	N P N D	D P U D	D P U D
Indiangrass	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
leadplant	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U	U P D U
little bluestem	U D D U	N D N N	U D D U	N D N N	N D N N	U D D U	U D D U
Missouri goldenrod	U U D U	N U U N	U U D U	N U U N	N U U N	U U D U	N U U N
needleandthread	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
penstemon	U U U U	U P P U	U U U U	U P P U	U P P U	U U U U	U P P U
prairie coneflower	U U D U	U P P U	U U D U	U P P U	U P P U	U U D U	U P P U
prairie junegrass	U D U D	N D N U	U D U D	N D N U	N D N U	U D U D	U D U D
prairie sandreed	U D D U	U D U U	U D D U	U U D U	U U D U	U D D U	U D D U
purple lovegrass	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	U U U U
red threeawn	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N	N N N N
rose	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U	U D D U
rush skeletonweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
sand bluestem	U D P D	U D U U	U D P D	U D U U	U D U U	U D P D	U D P D
sand dropseed	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N	N U N N
sand lovegrass	U D D U	N N N N	U D D U	N N N N	N N N N	U D D U	U D D U
sand paspalum	N U U N	N U N N	N U U N	N U N N	N U N N	N U U N	N U U N
Scribner panicum	U U D U	N U N N	U U D U	N U N N	N U N N	U U D U	U U D U
sedge	U D U D	U P N D	U D U D	U D U D	U D U D	U D U D	U D U D
sideoats grama	U D P U	U P D U	U D P U	U P D U	U P D U	U D P U	U D P U
silverleaf scurfpea	U U U U	N U U N	U U U U	N U U N	N U U N	U U U U	N U U N
small soapweed	D N N D	D U U D	D N N D	D U U D	D U U D	D N N D	D U U D
spiderwort	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
stiff sunflower	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U	U D P U
switchgrass	U D D U	U D U U	U D D U	N N N N	N N N N	U D D U	U D D U
thistle	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
western ragweed	U U U U	N N N N	U U U U	N N N N	N N N N	U U U U	N N N N
western sandcherry	D P P D	D U U D	D P P D	P U D P	D U U D	D P P D	P U U P
western wheatgrass	U P D U	N D N N	U P D U	N D N N	N D N N	U P D U	U P D U
Wilcox panicum	U U U U	N U N N	U U U U	N U N N	N U N N	U U U U	U U U U

N = not used; **U** = undesirable; **D** = desirable; **P** = preferred; **T** = toxic

[†] Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. With consultation of the land manager, more intensive grazing management may result in improved harvest efficiencies and increased carrying capacity.

Plant Community	Production (lbs./acre)	Carrying Capacity* (AUM/acre)
Bluestem/Prairie Sandreed	2400	0.76
Switchgrass/Prairie Sandreed	2000	0.63
Blue Grama/Western Wheatgrass	1400	0.44
Kentucky Bluegrass/Ragweed	900	0.20

* Continuous season-long grazing by cattle under average growing conditions.

If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage. During the dormant period, the forage for livestock will likely be lacking protein to meet livestock requirements, and added protein will allow ruminants to better utilize the energy stored in grazed plant materials. A forage quality test (either directly or through fecal sampling) should be used to determine the level of supplementation needed.

Hydrology Functions

Water is the principal factor limiting forage production on well drained portions of this site. Normal rainfall is limited to 17-22 inches per year. Soils on this site are in Hydrologic Soil Group A and B. Some areas have high water tables. On well drained portions of this site, infiltration potential is high. On well drained areas, significant runoff is expected to occur only during intense storms (refer to Section 4, NRCS National Engineering Handbook for runoff quantities and hydrologic curves).

For the interpretive plant community, rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as little bluestem. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present but only cover 1-2% of the soil surface. Overall this site has the appearance of being very stable and productive.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

Seed harvest of native plant species can provide additional income on this site.

Site Type: Rangeland
MLRA: 65 – Nebraska Sand Hills

Sandy 17-22" P.Z.
R065XY032NE

Supporting Information

Associated Sites

(065XY033NE) – Sands 17-22" P.Z. (065XY041NE) – Shallow to Gravel 17-22" P.Z.
(065XY024NE) – Subirrigated

Similar Sites

(065XY033NE) – Sands 17-22" P.Z.
[steeper slope; lower production; sand bluestem dominant; less little bluestem]

Inventory Data References

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Dave Cook, Rangeland Management Specialist, NRCS; Dwight Hale, Engineer, NRCS; Sheila Luoma, Resource Conservationist, NRCS; Marla Shelbourn, Rangeland Management Specialist, NRCS; Dave Steffen, Rangeland Management Specialist, NRCS.

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	15	1968 – 1983	NE, SD	Cherry, Grant, Keith, Lincoln, Logan, Sheridan, Thomas, Todd
Ocular Estimates	2	1999	SD	Bennett

State Correlation

This site has been correlated with South Dakota in MLRA 65.

Type Locality

State:	Township:	Latitude:
County:	Section:	Longitude:
General Legal Description:	Range:	Is the type locality sensitive? (Y/N):

Field Offices Counties

Ainsworth, NE	Brown, Keya Paha & Rock
Broken Bow, NE	Custer
Martin, SD	Bennett & Shannon
North Platte, NE	Lincoln, Logan & McPherson
Ogallala, NE	Arthur & Keith

Field Offices Counties

Oshkosh, NE	Garden
Rushville, NE	Sheridan
Thedford, NE	Blaine, Grant, Hooker & Thomas
Valentine, NE	Cherry
White River, SD	Todd

Relationship to Other Established Classifications

Level IV Ecoregions of the Conterminous United States; 44a – Nebraska Sand Hills.

Other References

Other references used include: USDA NRCS Water & Climate Center, USDA NRCS National Range and Pasture Handbook, USDA NRCS Soil Surveys from various counties, Atlas of the Sandhills.

Site Description Approval

State Range Management Specialist

Date

State Range Management Specialist

Date